

UNITED STATES OF AMERICA
POSTAL REGULATORY COMMISSION
WASHINGTON, DC 20268-0001

Periodic Reporting
(Proposal Six)

Docket No. RM2020-13

CHAIRMAN'S INFORMATION REQUEST NO. 6

(Issued February 10, 2021)

To clarify the Postal Service's petition to consider proposed changes in analytical principles, filed September 15, 2020;¹ responses to Chairman's Information Requests,² and the Postal Service's reply comments,³ Postal Service is requested to provide written responses to the following questions. The responses should be provided as soon as they are developed, but no later than February 19, 2021.

1. Please refer to the Reply Variability Report providing that "[e]ven at the 1% tails, it is perhaps notable that none of the values in Table 6 are clearly erroneous, particularly for [delivery bar code sorter (DBCS)] operations. Observations for [Automated Flats Sorting Machine (AFSM)] 100 operations less than half the median or [Flats Sequencing System (FSS)] observations more than twice the

¹ Petition of the United States Postal Service for the Initiation of a Proceeding to Consider Proposed Changes in Analytical Principles (Proposal Six), September 15, 2020 (Petition); see A. Thomas Bozzo & Tim Huegerich, Analysis of Labor Variability for Automated Letter and Flat Sorting, Christensen Associates, September 15, 2020 (Variability Report).

² Responses of the United States Postal Service to Questions 1-11 of Chairman's Information Request No. 1, October 14, 2020 (Response to CHIR No. 1); Responses of the United States Postal Service to Questions 1-8 of Chairman's Information Request No. 3, November 13, 2020 (Response to CHIR No. 3); Responses of the United States Postal Service to Questions 1-4 of Chairman's Information Request No. 4, November 19, 2020 (Response to CHIR No. 4); Responses of the United States Postal Service to Questions 1-9 of Chairman's Information Request No. 5, January 5, 2021 (Response to CHIR No. 5).

³ Reply Comments of the United States Postal Service Regarding Proposal Six, December 8, 2020; see Reply Report of A. Thomas Bozzo in Response to Comments of the Public Representative, December 8, 2020 (Reply Variability Report).

median may both be regarded as at least being anomalous[.]” Reply Variability Report at 15. Please also refer to Response to CHIR No. 1 that states “setting operation-specific productivity cutoffs based on machine characteristics was rejected, as it is not possible to set unambiguous cutoffs based on available information on machine throughput and staffing levels, particularly for AFSM 100 and FSS equipment subject to variable throughput and staffing levels[.]” Response to CHIR No. 1, question 6.b.

- a. Please confirm that that for DBCS, AFSM 100, or FSS equipment (operations), setting operation-specific productivity cutoff values is rejected. If not confirmed (or partially confirmed), please discuss the criteria for determining operation-specific productivity cutoffs and provide their specific values for all or any of the three referenced types of machine operations.
 - b. If question 1.a. is confirmed for flats (AFSM 100 and FSS) operations, please discuss the reasoning underlying the conclusion that the observations “for AFSM 100 operations less than half the median or FSS observations more than twice the median may both be regarded as at least being anomalous.” Reply Variability Report at 15.
2. Please refer to Table 6 of the Reply Variability Report that presents the analysis of the productivity screen cutoffs (by machine operation) for the 1%, 5%, and 10% cutoff values. *Id.* Please also refer to the Response to CHIR No. 5 presenting “effects of [two] alternative screens on estimated variabilities” in Table 4. Response to CHIR No. 5, question 7.c.iv.
 - a. Please provide the results of the productivity screen analyses, (similar to what was provided in Table 6 of the Reply Variability Report) for the two alternative productivity cutoffs suggested in Response to CHIR No. 5, question 7.c.iv., Table 4 (first, 5% tails, FY 2016-2019 data and, second, 5% tails, computed by month, FY 2016-2019 data).

- b. For the results of productivity screen analysis provided in question 2.a., please indicate which productivity values could be seen as at least being anomalous and explain why.
- 3. Please refer to the Variability Report that states: “We found that the estimated elasticities for workhours were somewhat sensitive to the inclusion of outliers with unusual values for labor productivity in regressions using unscreened data.” Variability Report at 21. Please also refer to Table 1 below.
 - a. Please confirm that Proposal Six flats variabilities, estimated from FSS and AFSM 100 workhour regression equations (with lag, seasonal variables, and for the FY 2016-2019 sample period), generally increase as the productivity screen cutoffs become more restrictive. See Table 1 below. If confirmed, please explain why the removal of a higher number of observations generally results in higher variabilities.
 - b. If question 3.a. is not confirmed, please discuss the relationship, if any, between productivity screen cutoffs and the magnitude of the variability estimates. If there is no such relationship, please explain why higher estimated variabilities are generally associated with more restrictive productivity screen cutoffs. For example, see numbers in columns (7) and (8) of Table 1 below, which are always positive for flats.
 - c. Please discuss why variabilities estimated from the AFSM 100 workhour regression equations appear to be more “sensitive” to changes in productivity screen cutoffs than variabilities for DBCS and FSS operations.⁴

⁴ As illustrated in Table 1, the difference between the 5% screen and no screen estimates for AFSM 100 operations is 25.5 percent.

Table 1. Workhour Variability Estimates Sensitivity

	No screen		1% screen		5% screen (Proposal Six)		Sensitivity	
	coeff	se	coeff	se	coeff	se	Coefficient Diff.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
							= (5)-(1)	= (5)-(3)
DBCS	0.821	0.059	0.992	0.035	0.976	0.032	15.6%	-1.5%
AFSM 100	0.518	0.144	0.722	0.095	0.774	0.091	25.5%	5.2%
FSS	0.732	0.110	0.750	0.092	0.804	0.070	7.2%	5.4%

Source: Library Reference USPS-RM2020-13/1, September 15, 2020, folder "Analysis," Excel file "results_seasonal.xlsx."

4. Please refer to Response to CHIR No. 4 that states “[t]he main reason the Postal Service did not examine models with the full set of lags is due to the likelihood that such a specification would encounter multicollinearity issues leading to statistically unreliable estimates of the coefficients on many or most of the lagged TPF variables. Additionally, there is little theoretical or operational basis for including the second through eleventh lags, compared to the first and twelfth lags.” Response to CHIR No. 4, question 3.d. Please also refer to the Variability Report that provides: “[t]est statistics for the joint inclusion of the lagged [total pieces fed (TPF)] and monthly dummy variables strongly reject the null hypothesis that lagged and seasonal effects [included into the extended equations] are jointly zero . . . [although for] AFSM 100, the joint test that the lagged TPF coefficients are zero does not reject the null hypothesis at standard significance levels (p-value 0.13).” *Id.* at 23-24, 24 n.10.
 - a. Please discuss in details why “there is little theoretical or operational basis for including the second through eleventh lags [into Proposal Six’s econometric model], compared to the first and twelfth lags.” Response to CHIR No. 4, question 3.d.

- b. Please discuss the reasons for estimating the AFSM 1000 variabilities from the extended regression equation with the first and the twelfth lags of monthly TPF (and not with any other lags) although the provided joint significance test did “not reject the null hypothesis at standard significance levels (p-value 0.13).” Variability Report at 24 n.10.
 - c. Please provide academic references (the Postal Service relied on when specifying the regression workhour models) that discuss how to determine the appropriate number of lags of an independent variable in a dynamic regression model.
5. Please refer to Docket No. R97-1, Appendices to Opinion and Recommended Decision, Volume 2, May 11, 1998, Appendix F (Docket No. R97-1 Opinion)⁵ that states “the estimator for the fixed effects . . . shows that the fixed effects [dummies] will include all of the difference between the average labor processing times for the facilities that is not captured by differences in the averages for piece handlings and the controls. There is nothing about the estimator for the fixed effects that prevents them from reflecting volume-variable indirect effects at the facility level.” Docket No. R97-1 Opinion, Appendix F at 42.
- a. Please confirm that the facility-specific fixed effects dummy variables could contain volume-variable indirect effects of TPF on workhours at the facility level.
 - b. If question 5.a. is confirmed, please explain whether it is appropriate to assume that such volume-variable indirect effects are not captured (or not fully captured) in the variability estimates in Proposal Six.

⁵ This document is available in the Postal Rate Commission Archives (1971-2004) at <https://www.prc.gov/prcarchive/viewpdf.aspx?docid=26815>.

- c. If question 5.a. is not confirmed, please explain what prevents the fixed effects dummy variables from reflecting volume-variable indirect effects of TPF on workhours at the facility level.
- 6. Please refer to the Variability Report that states “[t]he FY2016-FY2019 period features a relatively fixed operating environment including technology mix, while providing sufficient regression sample sizes, and serves as the sample period for the main estimation results.” Variability Report at 21. Please also refer to the Response to CHIR No. 3 that states “[l]imiting the amount of time variation in factors such as management quality, facility layouts, or local demographics is a partial motivation for employing a relatively short time period for the regression sample periods—i.e., the proposed four-year period rather than the full FY2007-FY2019 period.” Response to CHIR No. 3, question 3.b.
 - a. Please confirm that using a shorter time period such as a 3-year period would further limit the amount of time variation in factors such as management quality, facility layouts, or local demographics and improve the ability of the fixed effects estimator to account for unobserved non-volume heterogeneity among facilities.
 - b. If question 6.a. is not confirmed, please explain the effect of using a shorter time period on the applicability of a fixed effects estimator.
- 7. Please refer to the Variability Report that states “[t]he FY2016-FY2019 period features a relatively fixed operating environment including technology mix, while providing sufficient regression sample sizes, and serves as the sample period for the main estimation results.” Variability Report at 21. Please also refer to Table 2 below that provides two sets of variabilities: (1) those estimated in Proposal Six over the FY 2016-2019 sample period⁶ and (2) variabilities derived from the workhour regression equations estimated over a FY 2017-2019 sample period.

⁶ See Library Reference USPS-RM2020-13/1, folder “Analysis,” Excel file “results_seasonal.xlsx.”

All other assumptions underlying Proposal Six, including a 5% productivity screen, were kept the same.

- a. Please confirm that variability estimates provided in column (1) of Table 2 are estimated correctly. If not confirmed, please provide the corrected variabilities and explain the reasons for the occurred discrepancies. With your response please include program, log, and output files.
- b. If question 7.a. is not confirmed and, if the corrected variabilities estimated in question 7.a. are different from variabilities estimated in Proposal Six (see column (3) of Table 2), please explain the reasons why the variabilities changed when they were estimated over a slightly shorter time period (considering that the FY 2016-2019 sample period featured a relatively fixed operating environment as suggested in the Variability Report). Variability Report at 21.
- c. If question 7.a. is confirmed, please explain why variabilities changed quite substantially when estimated over a slightly shorter time period (considering that the FY 2016-2019 sample period featured a relatively fixed operating environment as suggested in the Variability Report). *Id.*

Table 2. Workhour Variability Estimates for Alternative Sample Periods

	5% screen, FY2017-2019		5% screen, FY2016-2019 (Proposal Six)	
	coeff	se	coeff	se
	(1)	(2)	(3)	(4)
DBCS	0.925	0.025	0.976	0.032
AFSM 100	0.850	0.085	0.774	0.091
FSS	0.789	0.080	0.804	0.070

Notes and Sources: Data for FY 2017-2019 sample period estimates (columns (1) and (2)) are from Library Reference USPS-RM2020-13/1, folder "Analysis," data file "analysis_set.dta." The sample period was modified by substituting the STATA code: "inrange(year, 2017, 2019)" for "inrange(year, 2017, 2019)" in STATA do file "analysis_seasonal.do" located in Library Reference USPS-RM2020-13/1, folder "Analysis." Proposal Six estimates (columns (3) and (4)) are from Library Reference USPS-RM2020-13/1, folder "Analysis," Excel file "results_seasonal.xlsx."

By the Chairman.

Michael Kubayanda